

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
5 January 2006 (05.01.2006)

PCT

(10) International Publication Number  
**WO 2006/001531 A1**

- (51) International Patent Classification<sup>7</sup>: **B41J 2/16**,  
G03F 7/00
- (21) International Application Number:  
PCT/JP2005/0 12267
- (22) International Filing Date: 27 June 2005 (27.06.2005)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
2004-190483 28 June 2004 (28.06.2004) JP
- (71) Applicant (for all designated States except US): **CANON KABUSHIKI KAISHA** [JP/JP]; 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KUBOTA, Masahiko** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **SUZUKI, Takumi** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **SATO, Tamaki** [JP/JP]; c/o CANON

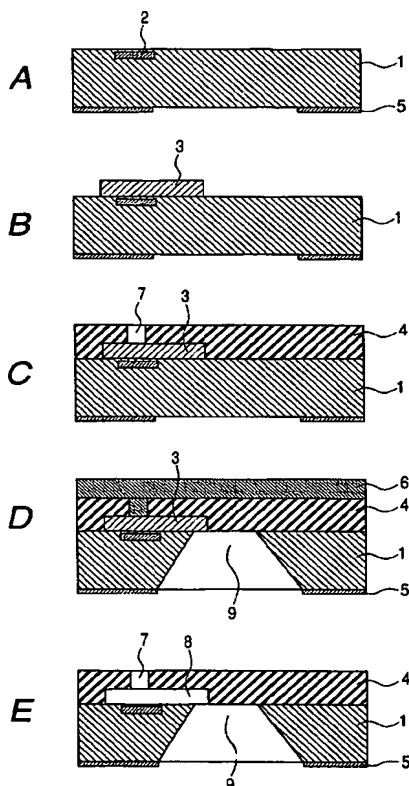
KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **KANRI, Ryoji** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **HATTA, Maki** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **ASAI, Kazuhiro** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **SHIBA, Shoji** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **HINO, Etsuko** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **ISHIKURA, Hiroe** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP). **OKANO, Akihiko** [JP/JP]; c/o CANON KABUSHIKI KAISHA, 3-30-2, Shimomaruko, Ohta-ku, Tokyo 1468501 (JP).

(74) Agents: **OKABE, Masao** et al; No. 602, Fuji Bldg., 2-3, Marunouchi 3-chome, Chiyoda-ku, Tokyo 1000005 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

[Continued on next page]

(54) Title: LIQUID DISCHARGE HEAD MANUFACTURING METHOD, AND LIQUID DISCHARGE HEAD OBTAINED USING THIS METHOD



(57) Abstract: According to the present invention, a method for manufacturing a liquid discharge head includes the steps of: forming a solid layer (3) for forming a flow path on a substrate (1) on which an energy generating element (2) is arranged to generate energy that is used to discharge liquid; forming, on the substrate where the solid layer is mounted, a coating layer (4) for coating the solid layer; forming a discharge port (7) used to discharge a liquid, through a photolithographic process, in the coating layer deposited on the solid layer; and removing the solid layer to form a flow path (8) that communicates with the energy element and the discharge port, whereby a material used for the coating layer contains a cationically polymerizable chemical compound, cationic photopolymerization initiator and an inhibitor of cationic photopolymerization, and whereby a material of the solid layer that forms a boundary with a portion where the discharge port of the coating layer are formed contains a copolymer of methacrylic acid and methacrylate ester.

WO 2006/001531 A1



AT, AU, AZ, BA, BB, BG, **BR**, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, **HR**, HU, **ID**, IL, IN, IS, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

- (84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FT,

FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, **BJ**, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*